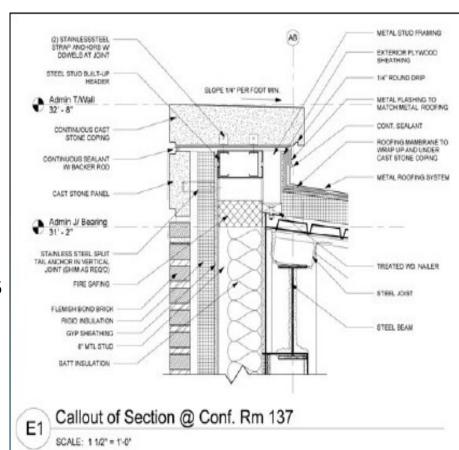


Learning Objectives...

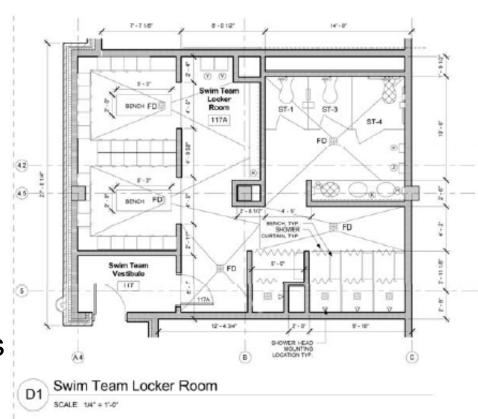
You will . . .

- Be able to understand different types of architectural drawings and what they communicate.
- Be able to understand symbols used in blueprints and vocabulary
- Learn how to interpret construction drawings



Overview...

- Why do I need to know how to read blueprints?
- What are the different types of architectural drawings?
- What do all these symbols mean?



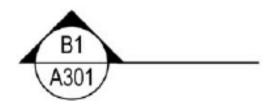
 How do I read construction specifications?

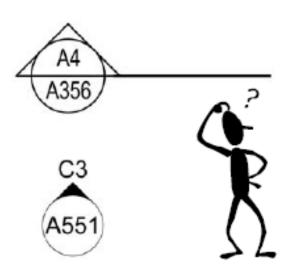
Blueprints

Why do I need to know how to read blueprints?



- Clear Communication is essential...
 - To be effective in determining your requirements are met
 - To ensure your needs are correctly interpreted
- To deliver a successful project

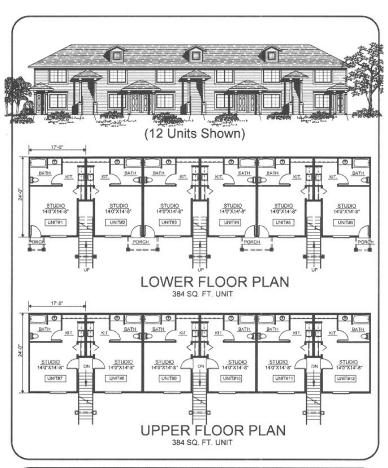




Architectural Design Process

Five Phases:

- 1. Schematic design
- 2. Design development
- 3. Construction drawings
- 4. Building & contract negotiation
- 5. Construction administration



Bldg. Width= 102'-0"
Depth = 32'-0"
(Includes Porches)
Total Sq. Ft = 384 / unit

Building Designs By Stockton residential multi-family marketing Toll Free #1-800-368-0821 E-MAIL: stockton@wa-net.com

http://www.stocktondesign.com

12-2915

Schematic Design

 Develop clearly defined, feasible concept

 Clarification of project's program, alternative designs, and construction cost estimates

Documentation

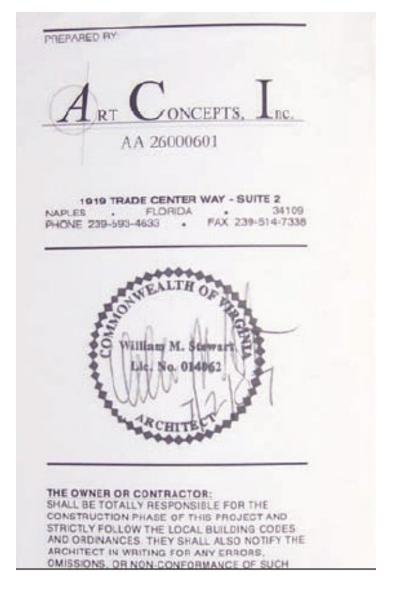
- Site plans
- Floor plans
- Exterior elevations
- Critical building areas
- Landscape plans
- Cost estimates

Design Development

Design refined into clear, coordinated set of drawings

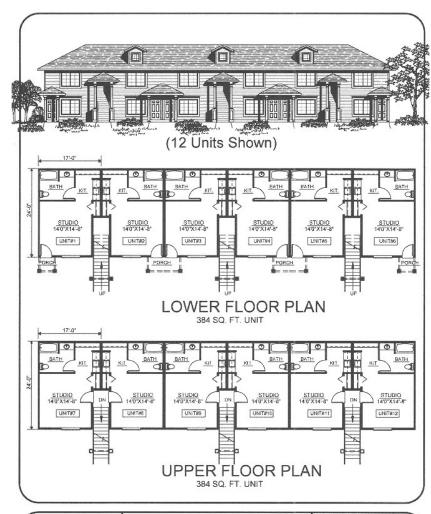
Typical documentation:

- Fully developed floor plans
- Exterior elevations
- Building sections
- Fully developed site plan
- Engineers "sign & seal"



Construction Drawings

- Construction drawings must include all details required by city, county, and federal guidelines
- Documents which Architect, Owner, and Officials hold Contractor responsible
- Document used by Contractor to determine construction costs

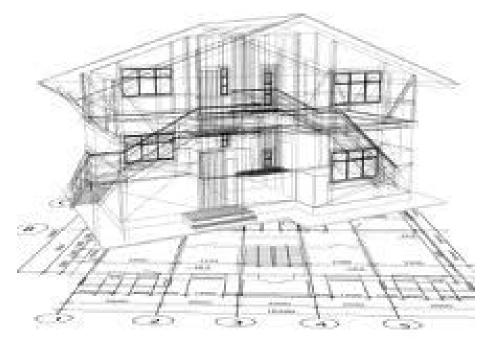


Rldg. Width= 102'-0" epth = 32'-0" Building Designs By Stockton (Includes Porches) otal Sq. Ft = 384 / unit

residential • multi-family •marketing Toll Free # 1-800-368-0821 E-MAIL: stockton@wa-net.com

12-2915

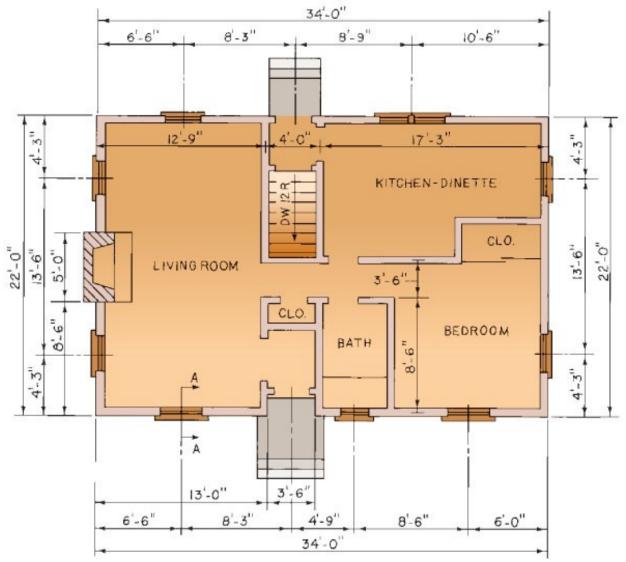
- Describes completed structure
 - Provide details of size and shape description
 - Materials
 - Finish
 - Special details





Parts of a Blueprint

Architectural Blueprints



Abbreviations

Abbreviations are required on blueprints to eliminate clutter...

- Common abbreviations are industry standard, and unique abbreviations often describe a specific system, item, or term.
- It is important to understand that some abbreviations can describe several different items.
- Abbreviation legend is created by architect and listed on blueprint.

Abbreviations

AB - Anchor bolt

ADDL - Additional

AFF - Above finish floor

ALT - Alternate

ARCH - Architect

B/ - Back of

BLDG - Building

BLK - Block

BM - Beam

BOF - Bottom of footing

elevation

LT WT - Lightweight

MAS - Masonry

MATL - Material

MAX - Maximum

MECH - Mechanical

MFR - Manufacturer

MIN - Minimum

MISC - Miscellaneous

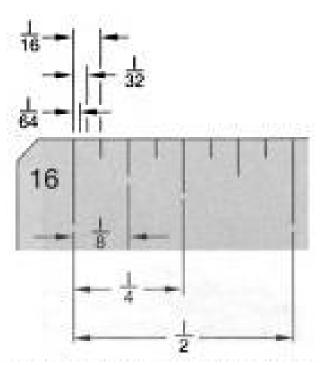
MO - Masonry opening

MTL - Metal

Scales

Architectural Scales:

- 1" = 40'-0" Site Plan (match Eng.)
- 1/8" = 1' 0" Floor Plan, Ceilings
- 1/16" = 1' 0" Elevations
- 1/2" = 1' 0" Wall Sections
- 1 1/2" = 1' 0" Details



Engineering Scales: fit the site on 1 sheet

• 1" = 20' - 0" or 30', 40', 50', 100', etc.

Blueprints & Drawing Scales

Residential floor plans:

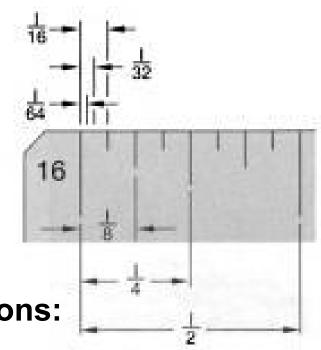
$$1/4$$
" = 1'-0"

Commercial plans:

Elevations:

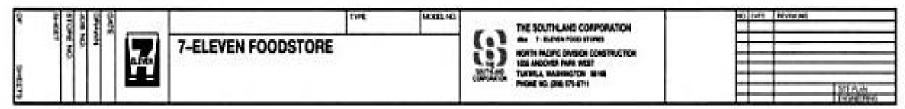
$$1/4$$
" = 1'-0"

Construction details & cross sections:

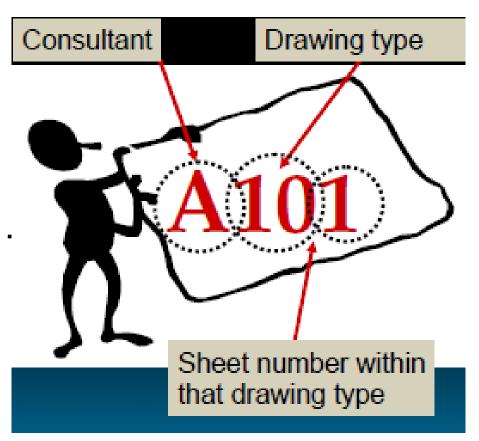


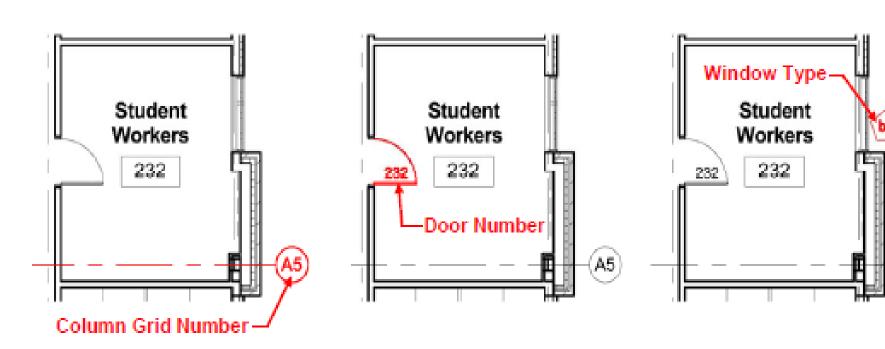
Title Block:

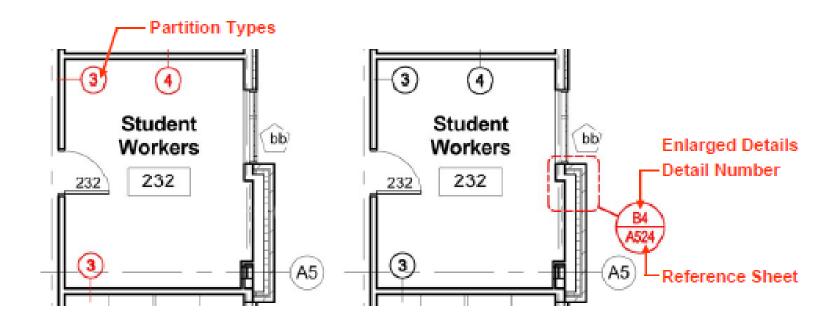


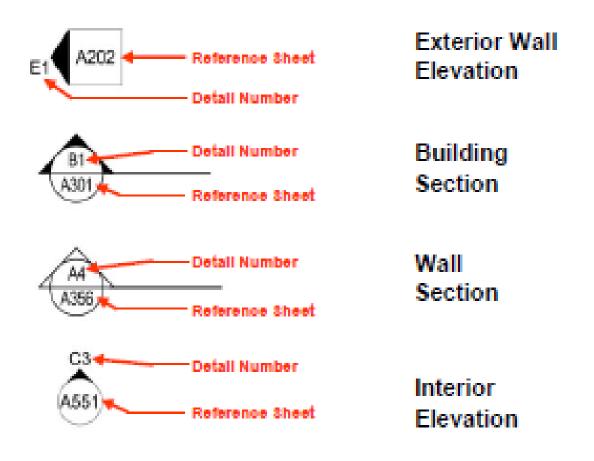


- What does the sheet number tell me?
- Prefix: Identifies which consultant's documents they are...
 - -A = Architecture
 - -C = Civil
 - S = Structural
 - MEP = Mechanical,
 Electrical, Plumbing









Information Blocks:



GENERAL NOTES

 VERIFY ELECTRIFIED PARTITION CONNECTION WITH PARTITION INSTALLER FOR EXACT WALL OR POKE THRU LOCATION PRIOR TO ROUGH-IN, TYPICAL ALL LOCATIONS.

SHEET NOTES

- PROVIDE CONNECTIONS AS REQUIRED FOR OWNER FURNISHED EQUIPMENT. FIELD VERIFY NEMA CONFIGURATION WITH EXISTING EQUIPMENT.
- (2) PROVIDE 3/4" FIRERATED PLYWOOD FOR TELEPHONE TERMINAL BACKBOARD, PLYWOOD SHALL BE 8'-0" HEIGHTH AND ENTIRE LENGTH OF WALL.
- (3) PROVIDE WALL SWITCH FOR CONTROL OF EXHAUST FAN.
 MOUNT ADJACENT TO LIGHT SWITCHES, PROVIDE
 ENGRAVED NAMEPLATE "EXHAUST FAN."

PARTIAL LEGEND

(SEE SHEET E-13)

- WALL OUTLET: TELEPHONE *
- < WALL CUTLET: DATA *
- ← WALL OUTLET: COMBINATION TELEPHONE/DATA *
- FIRE RATED FLUSH POKE THRU: OUTLETS AS SHOUN *
- WALL RECEPTACLE: DUPLEX
- WALL RECEPTACLE: DOUBLE DUPLEX
- FIRE RATED WALL POKE THRU: ELECTRIFIED PARTITION CONNECTION , WALL (DATA & TELEPHONE ROUTE I" C, WITH PULL STRING TO ACCESSIBLE CEILING SPACE)* *
- E FIRE RATED POKE THRU: ELECTRIFIED PARTITION CONNECTION (DATA, TELEPHONE, POWER)
- FIRE RATED WALL POKE THRU: ELECTRIFIED PARTITION CONNECTION, WALL (POWER) * *
- IG DENOTES ISOLATED GROUND
- * NOTE: ROUTE 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING SPACE,
- * * NOTE: MOUNT HORIZONTAL IN BASE

Bill of Materials

Bill of Materials for #1008	
Input Questions:	
Check the whole materials list spreadsheet for "#VALUE!" symbols, if there is one, check these inputs below for accuracy	
House Number =	1008-3d2
# of Bedrooms =	3
# of Full Bathrooms (sink + tub + toilet) =	1
# of Half Bathrooms (sink + toilet) =	0
# of Hallways (can be zero) =	1
Are the Washer & Dryer in a utility room? (as apposed to a small closet) (yes or no) =	no
Does the dining room require its own lighting? (yes or no) =	yes
How many closets/utility rooms have their own lights in them?	0
square feet =	1008
House Length (porch separate) =	42
House Width (gable end) (porch separate) =	24
Porch external to house? (protrudes from house?) (yes/no) (use for next two questions) =	yes
Porch Length (smaller dimension of porch)=	7.333
Porch Width (Gable side of porch)(bigger dimension of porch)=	23.333
# of exterior corners on the house with vinyl siding on them =	4
# of interior corners on the house with vinyl siding on them =	0
# of exterior doors =	2
# of exterior windows (full size) =	8
# of exterior windows (small size) =	2
of the windows listed above, how many pairs of windows are there? =	2
# of courses of foundation block (depends on lot)	4

Bill of Materials

Materials List	Home #	1008-3d2	
FOUNDATION	QTY O/H	QTY / BUY	Material
Footing:		8	concrete (2500psi) (5 bag mix) (yds)
		4	1/2" x 20' rebar grade stakes
Foundation Block:		420	8 x 8 x 16 concrete block
		15	bags type N mortar
		1	32" x 24" crawl door
		1	window well (36" x 24")
		3	sand (ton)
		7	louver vents
		40	1/2" x 16" anchor bolts
Gravel Fill:		1	12' x 100' 6 mil plastic
		17	pea gravel (ton)
Termite Treatment:		varies	
Beam: Order by house			
length		41 1/2	8" - 13# (ft)
		_	
Evactuation/Backhoe:		varies	

Specifications

Table of Contents:

16 Divisions

9 - Finishes

1 - General Requirements	3 - 1 IIII311C3
2 - Site Construction	10 - Specialties
3 - Concrete	11 - Equipment
4 - Masonry	12 - Furnishings
5 - Metals	13 - Special Construction
6 - Wood and Plastics	14 - Conveying Systems
7 - Thermal & Moisture Protection	15 - Mechanical
8 - Doors and Windows	16 - Electrical

Division Layout: Three Part Outline

Part 1 General

- 1.01 Section Includes
- 1.02 Related Sections
- 1.03 Alternates
- 1.04 Submittals
- 1.06 Quality Assurance
- 1.07 Regulatory Requirements
- 1.08 Pre-Installation Meeting
- 1.09 Mock-up
- 1.10 Environmental Requirements
- 1.11 Extra Materials
- 1.12 Warranty

Part 2 Products

- 2.01 Manufacturers
- 2.02 Materials
- 2.03 Accessories

Part 3 Execution

- 3.01 Examination
- 3.02 Preparation
- 3.03 Installation
- 3.04 Tolerances Field Quality
 - Control
- 3.05 Manufacturer's Field Services
- 3.06 Cleaning
- 3.07 Protection of Work
- 3.08 Schedule

Specifications

 Schedule: Written matrix that identifies characteristics by location

Find: Finishes & doors

Room No.	Room Name	Floor	Base	North	East	South	West	Ceiling
125	Gymnasium	WD	VB-1	P-2	P-2	P-2	P-2	EXP, P-1
161	Gym Storage	VCT	R	P-1	P-1	P-1	P-1	EXP
140	Men's Locker Rooms	CT-2	CT-4	CT-5	CT-5	CT-5	CT-5	AC-2
142	Janitor	SC	R	P-1	P-1	P-1	P-1	AC-1
159	Corridor	CPT-1	R	HPC-1	HPC-1	HPC-1	HPC-1	AC-2

Architectural Blueprints

- Architectural blueprints are master plan of entire project illustrated on small scale to represent full-sized structure.
- Most common scale is 1/4" representing one linear foot.
- All blueprint pages are provided with alphabetical and numerical identification and text description.
- Location and direction of floor joists are indicated on foundation plan.



A—Architectural pages

S—Structural pages

P—Plumbing pages

M—Mechanical pages

E—Electrical pages



Examples:

A1 through A4 (4 architectural pages)

S1 through S8 (8 structural pages)

P1 through P3 (3 plumbing pages)

M1 through M4 (4 mechanical pages)

E1 through E5 (5 electrical pages)

- Architectural pages include plans for building and plans for surrounding areas
- Structural plans show the structure of the building:
 - Concrete
 - Masonry
 - Wood framing
 - Roof plans
 - Etc.

- Plumbing plans show plumbing system
- Mechanical plans show heating, air conditioning, and process piping systems
 - They may also show systems such as conveyor lines
- Electrical plans show building's electrical system

 Architectural pages include plans for the building and plans for the surrounding areas



Types of Architectural Drawings

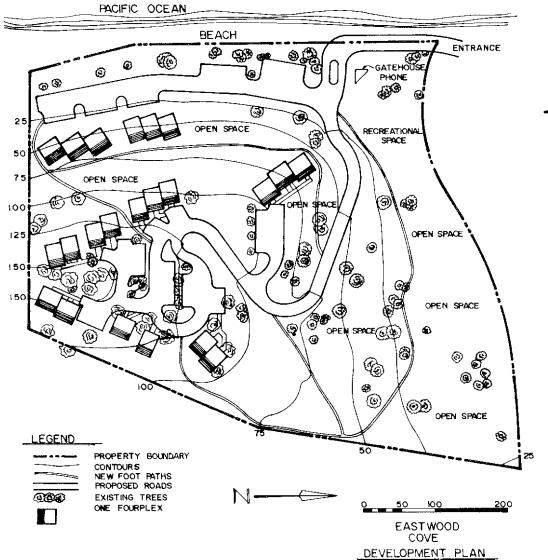
- Graphically represent design intent
- Perspective Rendering: illustrating threedimensional qualities
- Site Plan: drawing illustrating geographical conclusions in relation to building placement

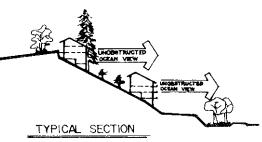






Site Plans

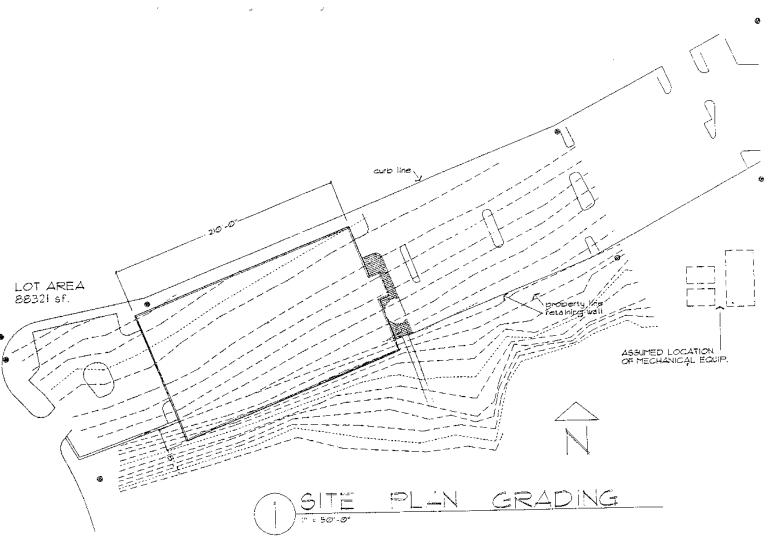




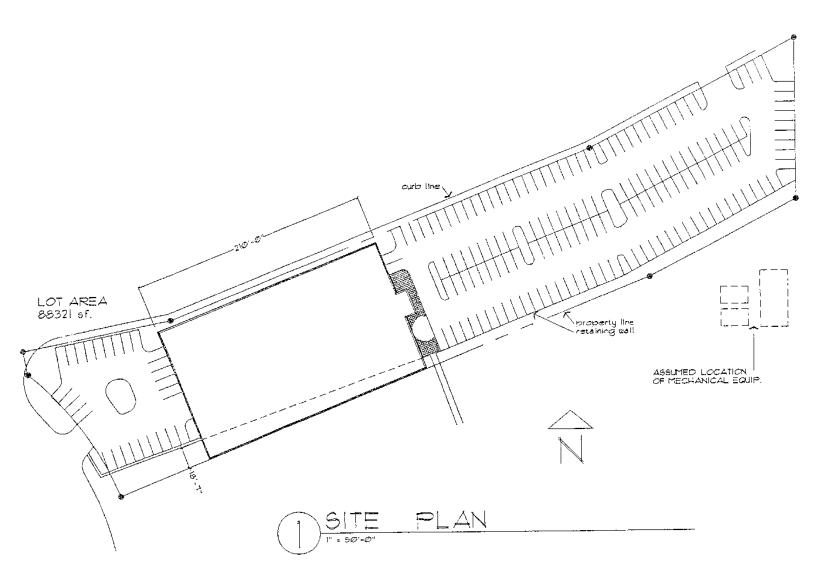
LAND USE SUMMARY

ZONE	RI	
GROSS AREA	7.63	ACRES
NET AREA	7.05	ACRES
ROADS PACKING	119	ACRES
STRUCTURES (44UNITS)	.44	ACRES
RECREATIONAL 4 OPEN SP	ACE3.50	ACRES
INTERFACING	1.92	ACRES
DENSITY	12.24	UNITS/ACRE

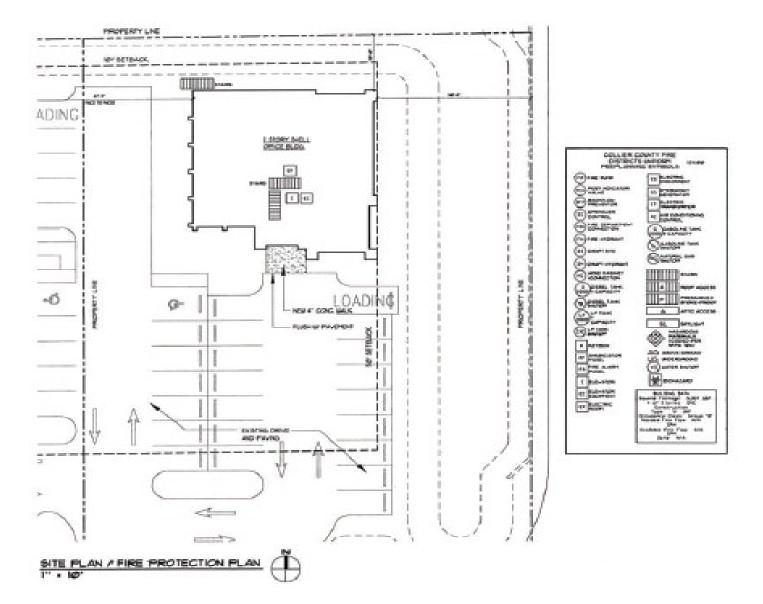
Site Plans



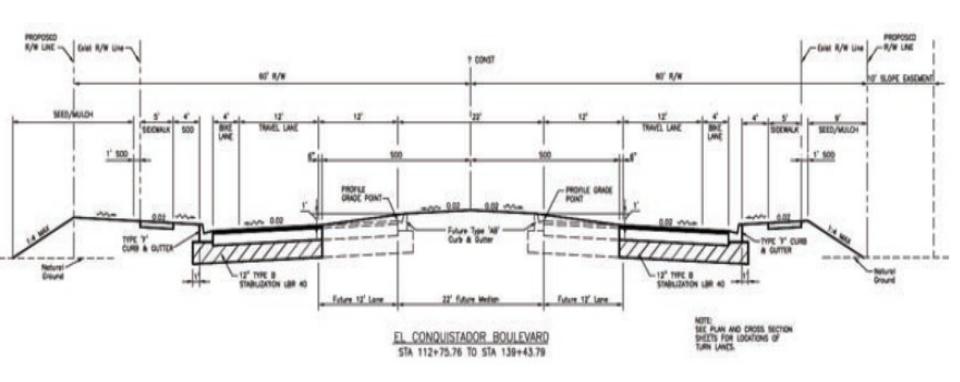
Site Plans



Site Plans



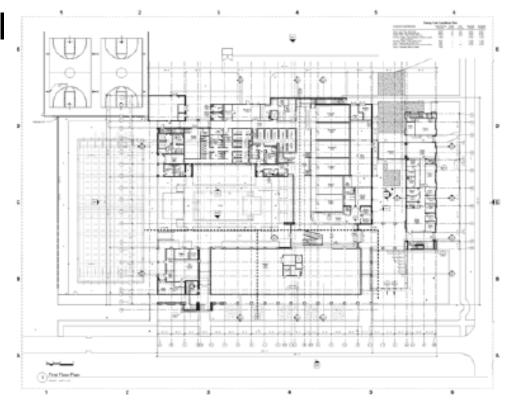
Site Plans



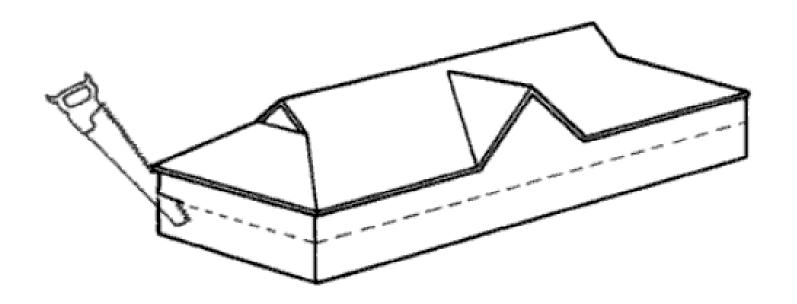
Types of Architectural Drawings

 Floor Plan: horizontal slice through building approx. 4'-0" above floor

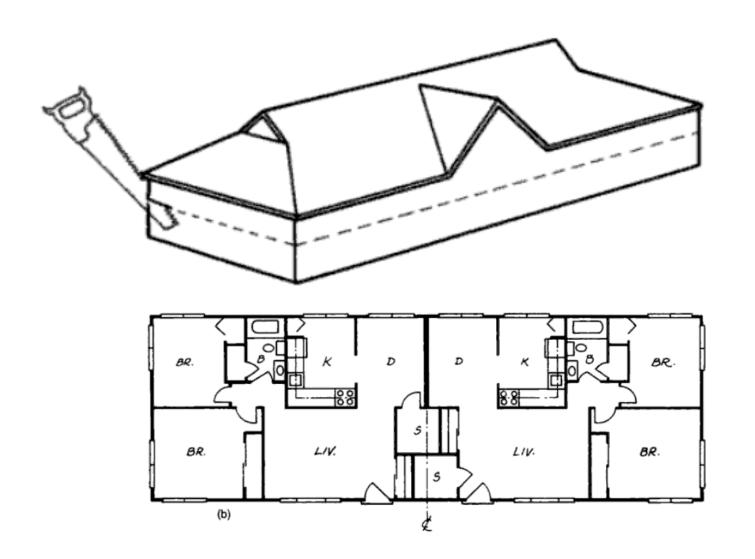
 Find: Wall & door layouts, dimensions, symbols, & refers you elsewhere



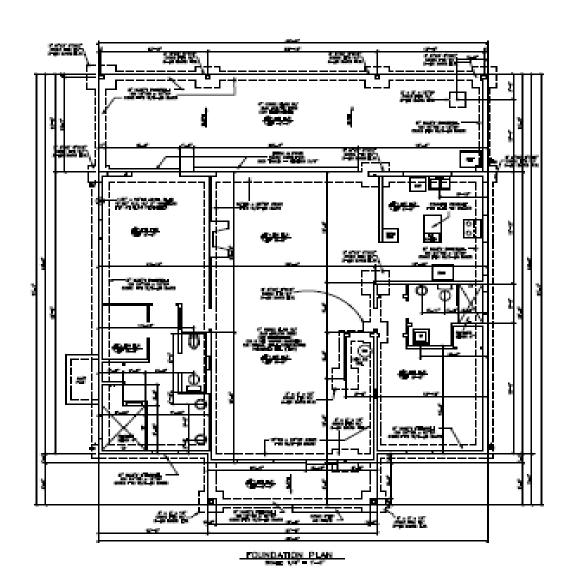
Foundation & Basement Plans



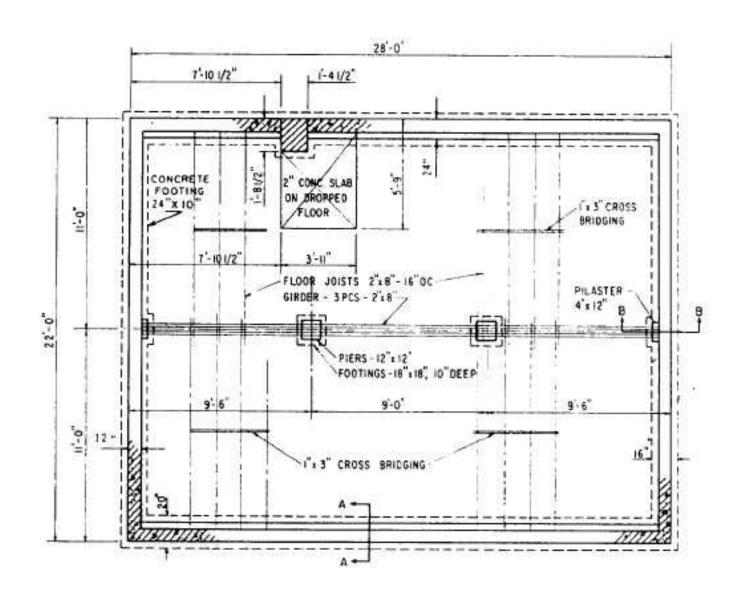
Foundation & Basement Plans



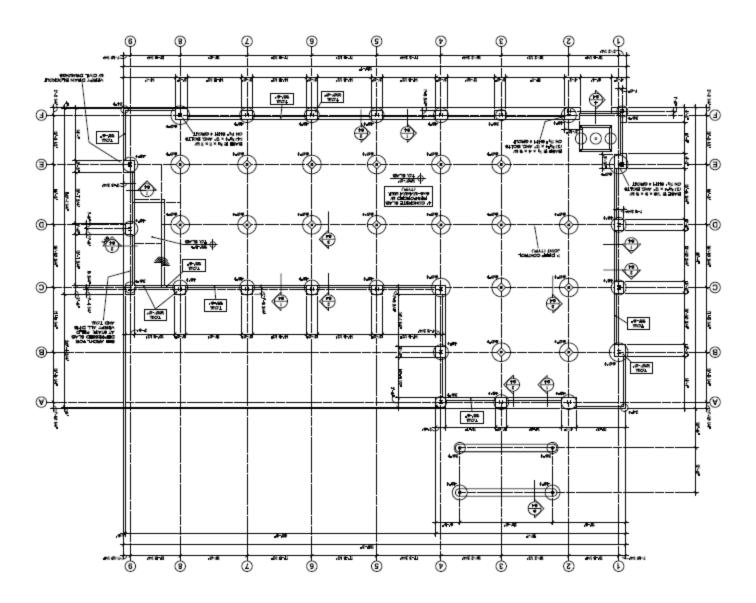
Foundation Plan

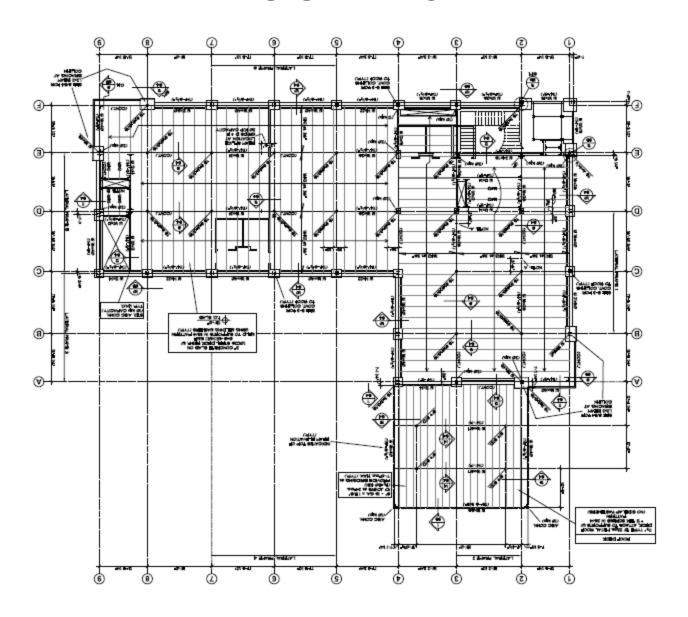


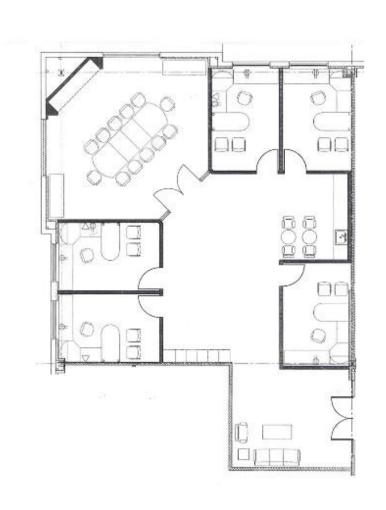
Foundation & Basement Plans



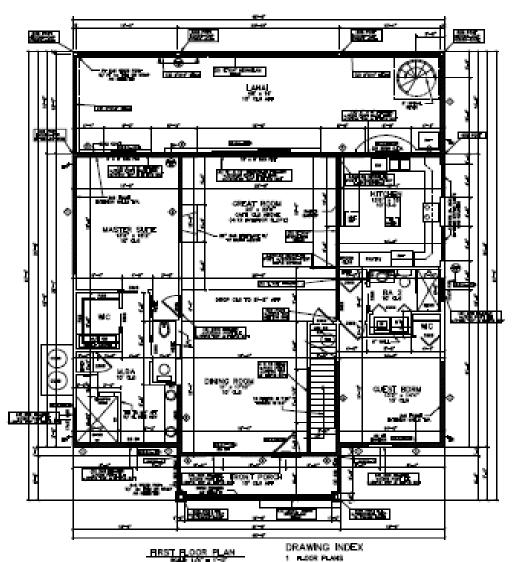
Foundation Plan











GENERAL NOTES

- A DESCRIPTION OF PERSONS ASSESSMENT ASSESSME COLUMN TO ARREST STREET, STREE

- Control of the contro
- CONTRACTOR OF THE PROPERTY OF THE PARTY OF

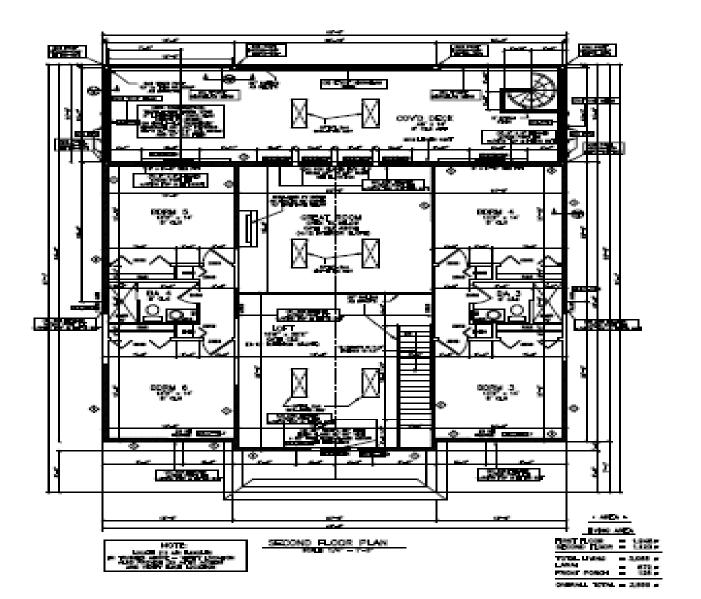
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DESTRUCTION

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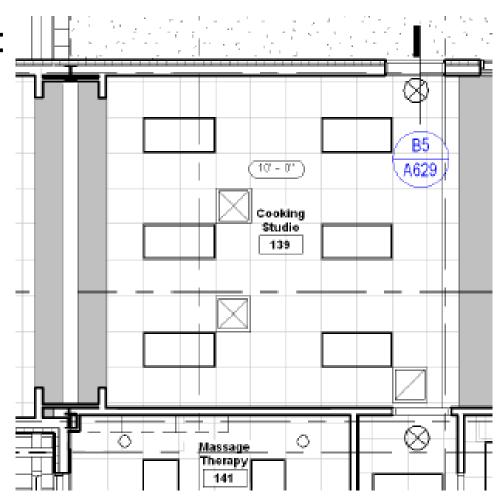
- ROOF PLANS BLEATING BLEATING BLEATING FEMILATER PLANS FEMILATER PLANS GARACE PLANS GARACE PLANS



Types of Architectural Drawings

 Reflected Ceiling Plan: plan looking at ceiling

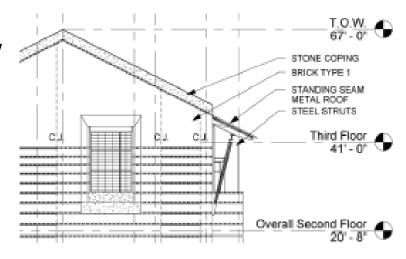
 Find: Light fixtures, air grilles, ceiling heights, ceiling treatment

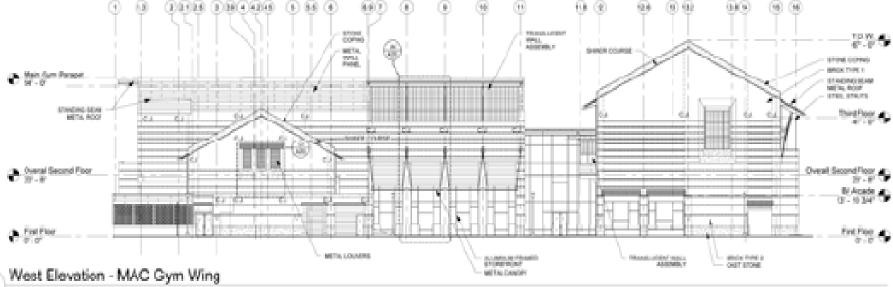


Types of Architectural Drawings

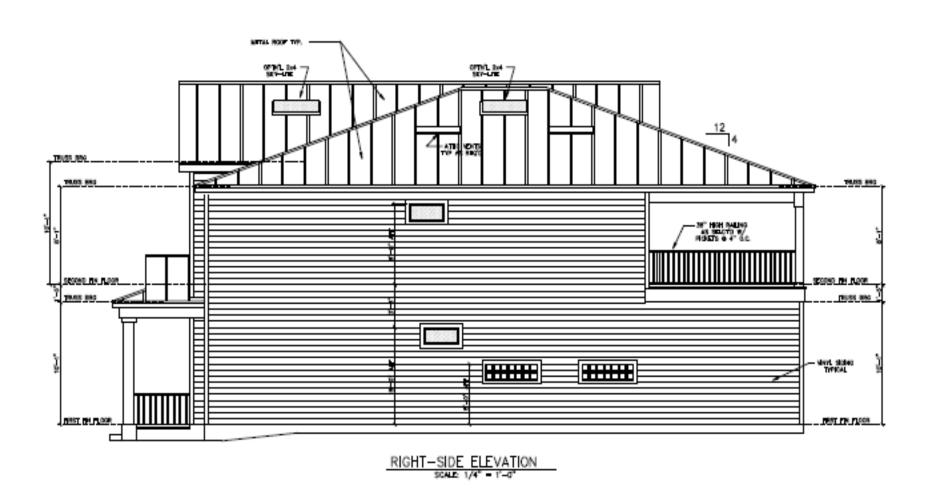
 Elevation: straight-on view (two dimensional)

Find: Building appearance
 & materials





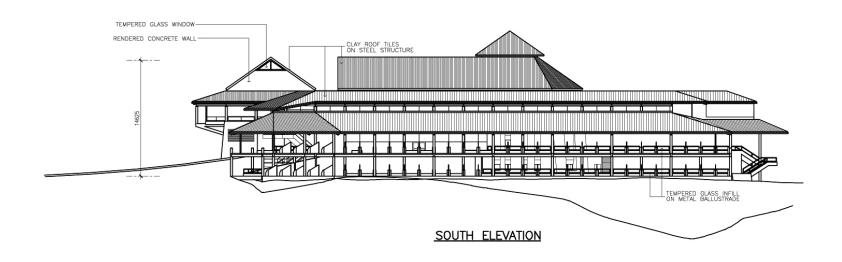






REAR ELEVATION
SCALE: 1/4" = 1'-0"

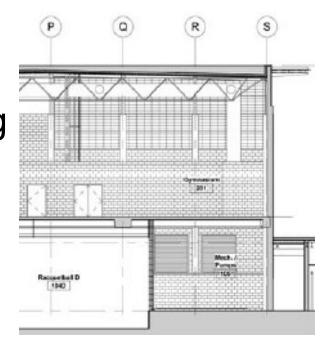




Types of Architectural Drawings

 Section: vertical slice through building

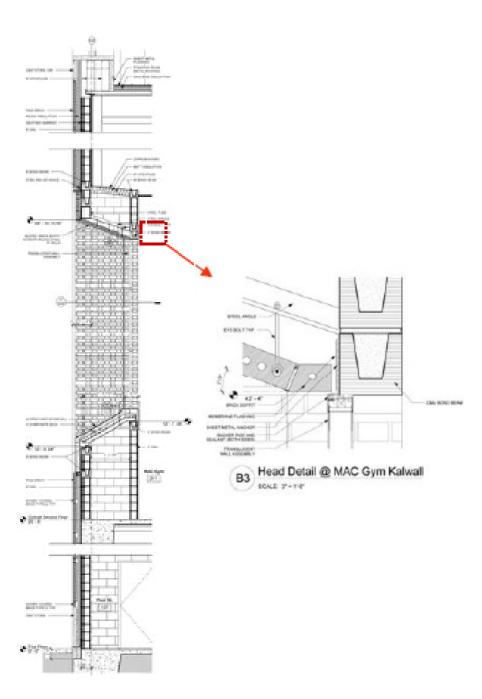
 Find: Floor-to-floor heights, dimensions, vertical stacking



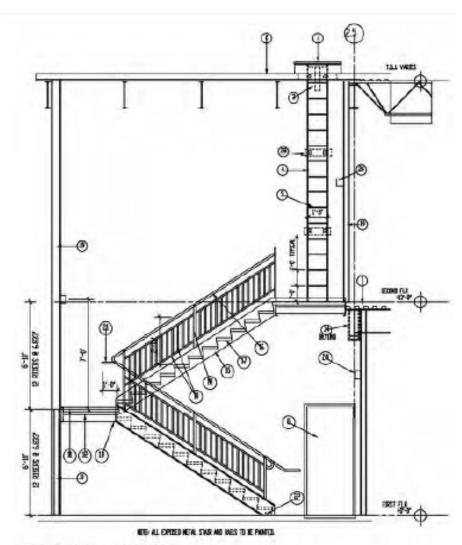


 Wall Section: large scale section through exterior wall

 Find: Detailed information about how to build exterior wall



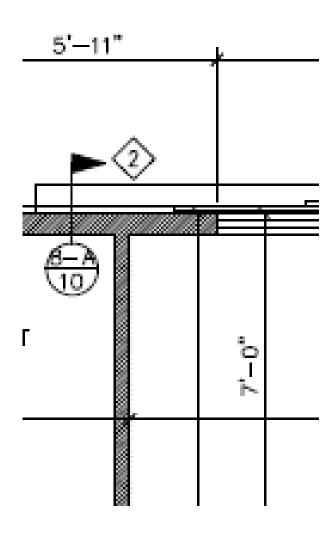
Sections



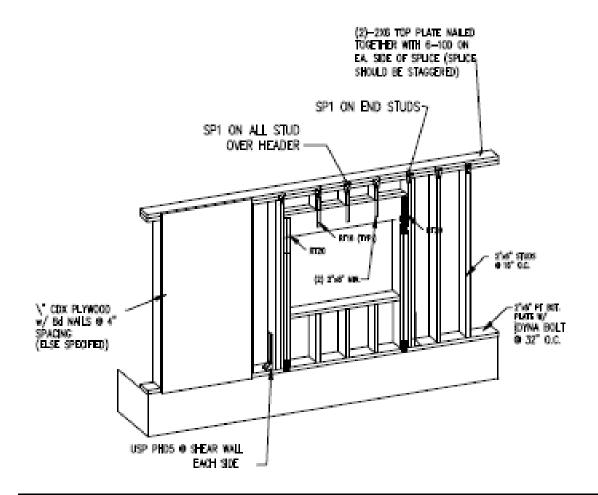
SECTION AT STAIR #1

SCALE: 3/8" - 1'-0"

Sections



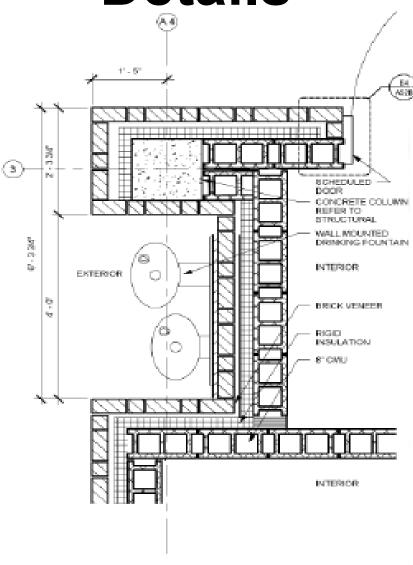
Details



TYPICAL OPENING

 $\begin{pmatrix} 2-\lambda \\ 11 \end{pmatrix}$

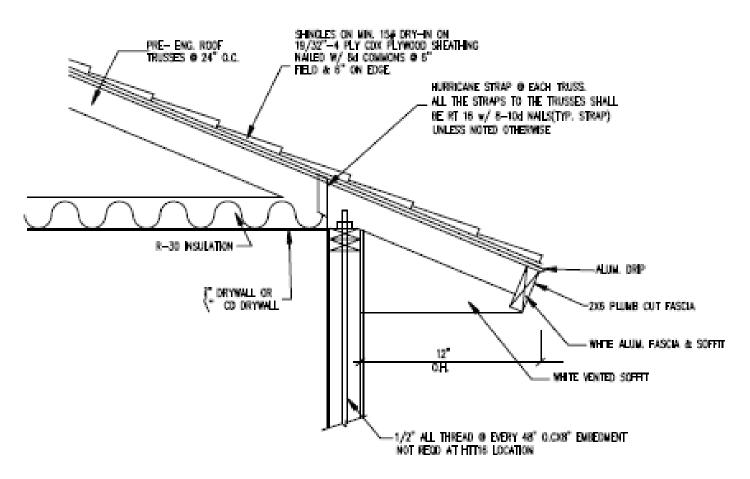
Details



Plan Detail

SCALE: 3/4" = 1'-0"

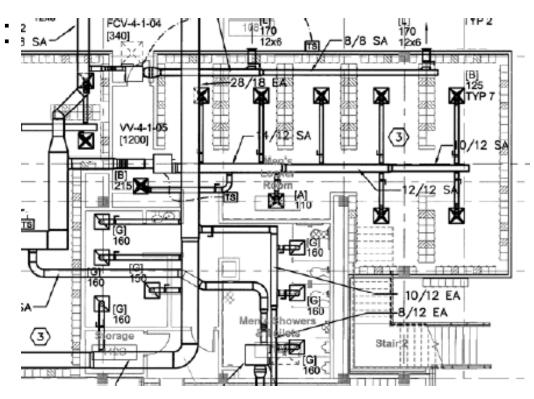
Details



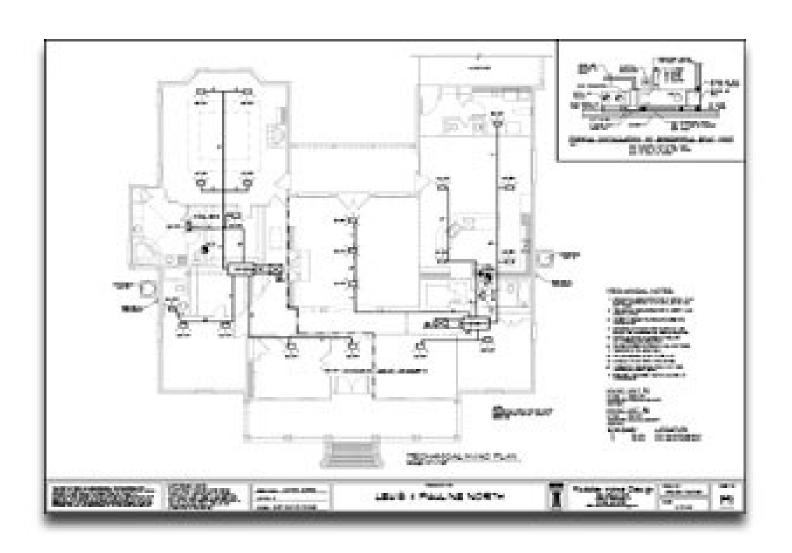
ROOF CONNECTION

Types of Architectural Drawings

 Typically identified on "M" drawings



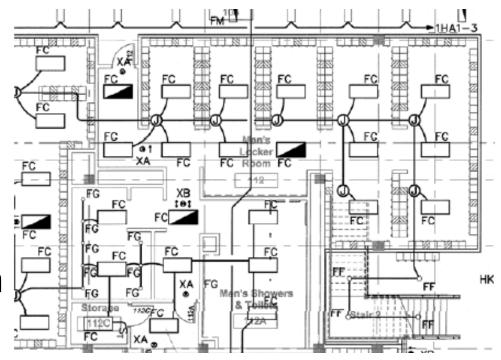
Mechanical Plan (HVAC)



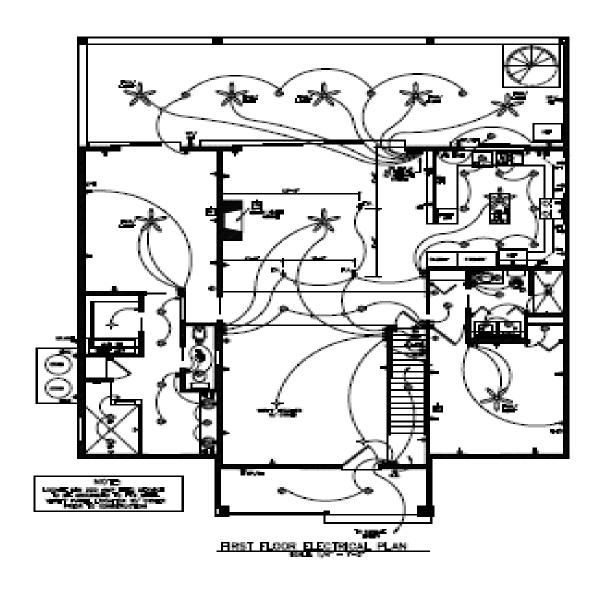
Types of Architectural Drawings

 Electrical Drawing: describes type & location of power and lighting

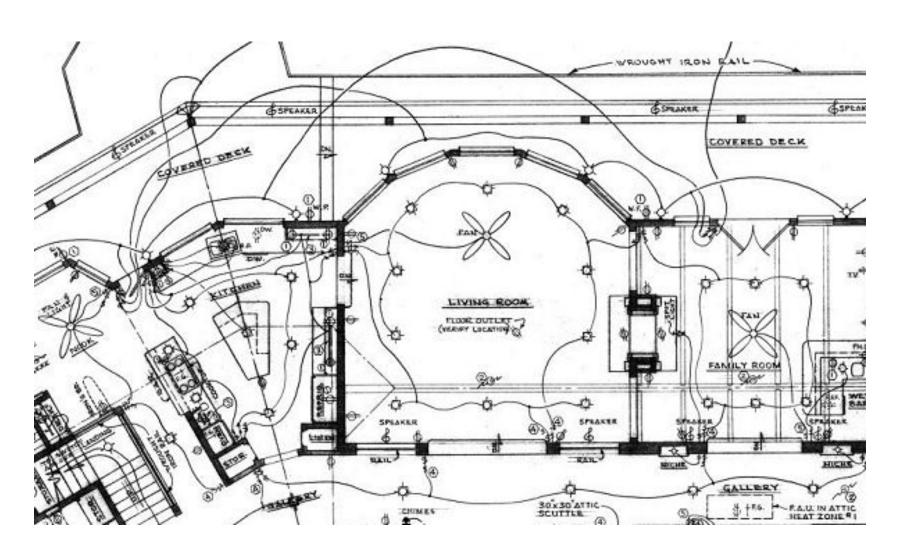
 Typically identified on "E" drawings



Electrical Plans



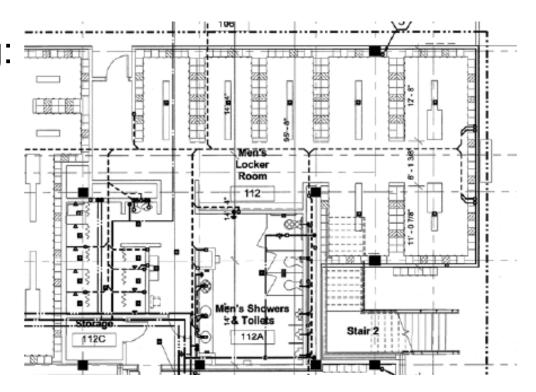
Electrical Plans



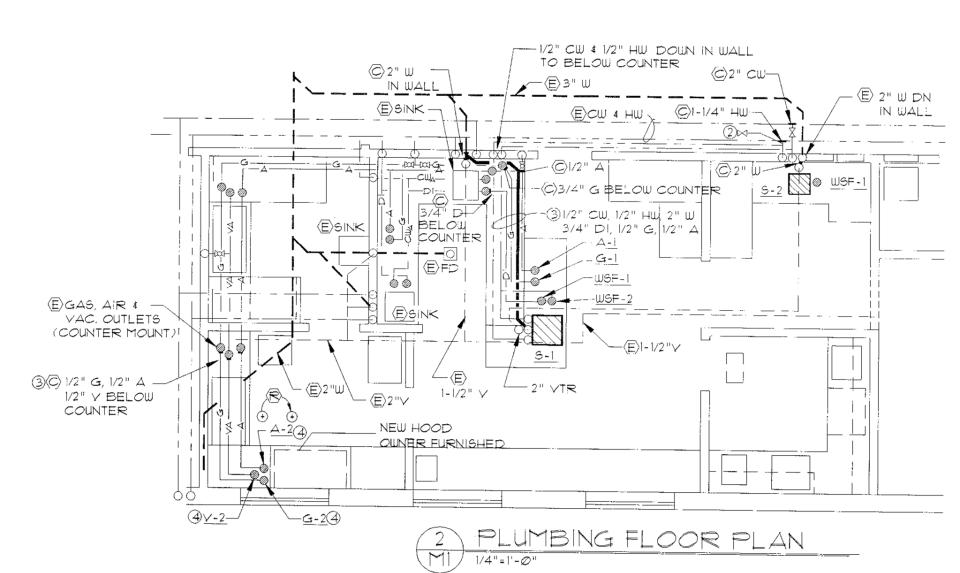
Types of Architectural Drawings

 Plumbing Drawing: describes type & location of sinks, water closets, drinking fountains, etc.

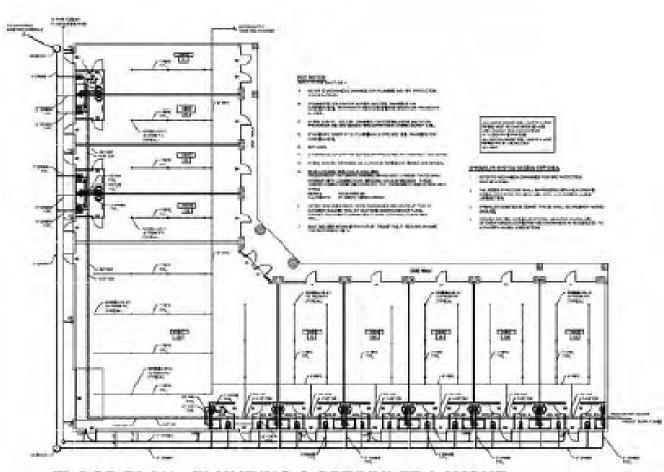
 Typically identified on "P" drawings



Plumbing Plan



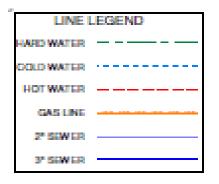
Plumbing Plan

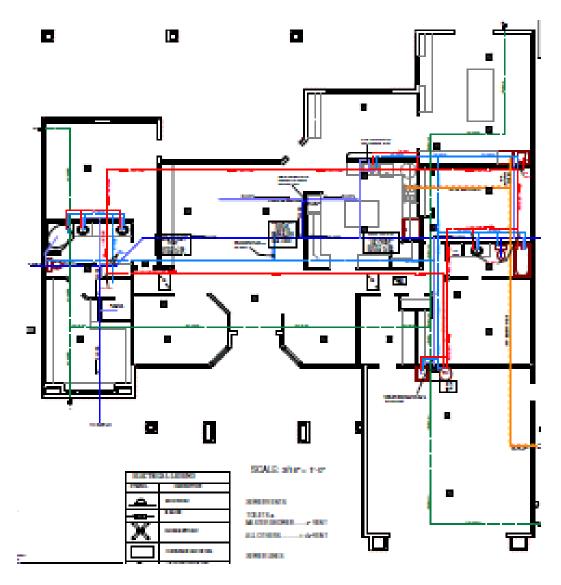


FLOOR PLAN - PLUMBING & SPRINKLER LAYOUT

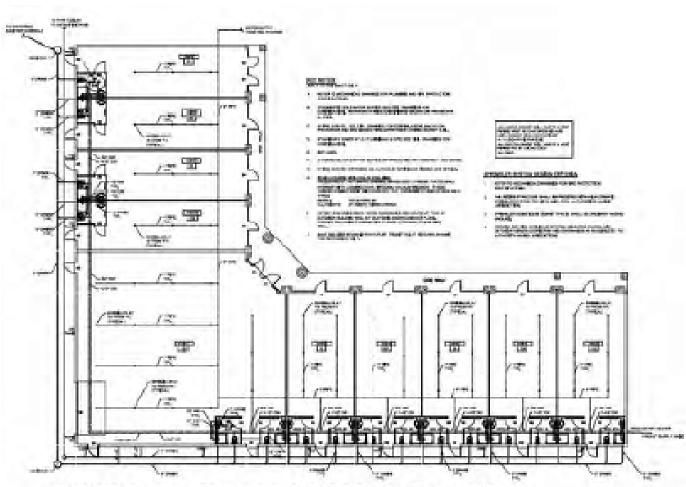
SCALE: 1/0" = 1'0"

Plumbing Plan





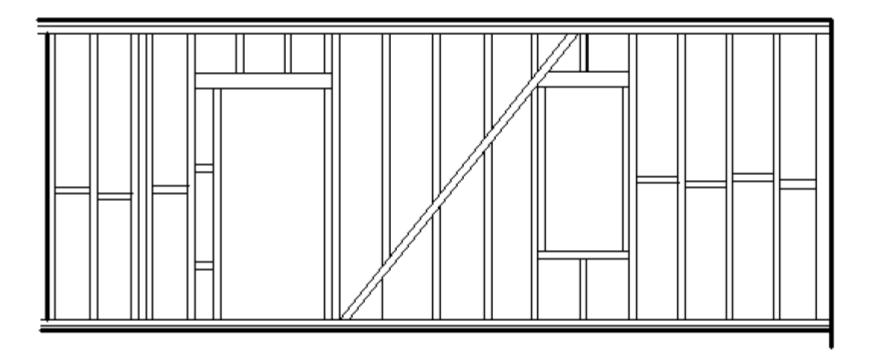
Plumbing & Sprinkler Plan



FLOOR PLAN - PLUMBING & SPRINKLER LAYOUT

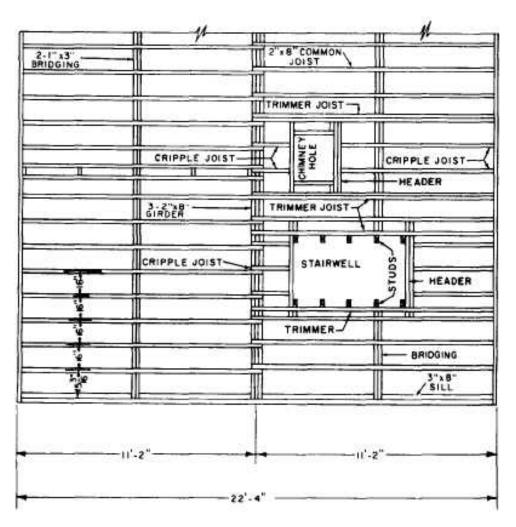
SCALE: 1/1" = 1'0"

Framing Plan



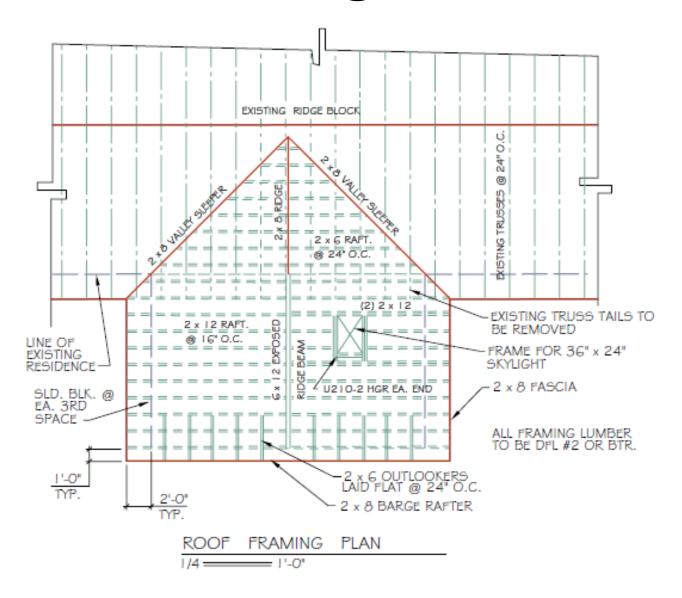
Wall Framing Plan

Framing Plan



Floor Framing

Framing Plan

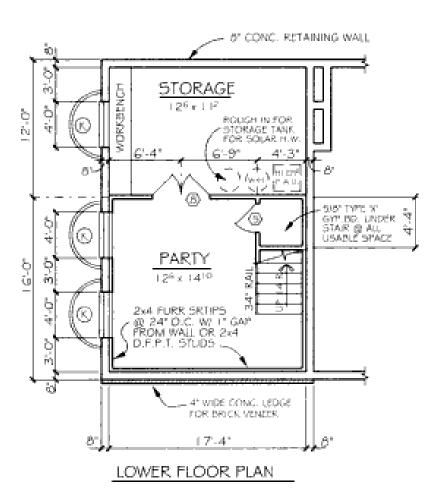


Door & Window Schedules

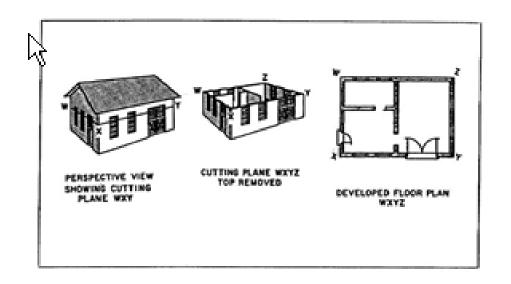
Door Schedule						
Location	Туре	Size	Quantity	Remarks		
1	A	3'-0" x 6'-0" x 1 3/4"	1	Insulated		
2	8	4'-0" x 6'-0" x 1 3/4"	2	Insulated		
3	C	1'-0" x 6'-8" x 1 3/4"	1			
4	D	4'-0" x 6'-0" x 1 3/4"	1			
5	E	2'-4" x 6'-8" x 1 3/8"	2			
6	F	2'-4" x 6'-8" x 1 3/8"	3			
7	G	2'-4" x 6'-8" x 1 3/8"	2			
8	H	3'-0" x 2'-6" x 1 3/8"	1	Louvered		
9	T	4'-0" x 6'-8" x 1 3/8"	1	Double bifold		
10	J	1'-6" x 6'-8" x 1 3/8"	4	Double bifold		
11	K	4'-0" x 2"-6" x 1 3/8"	8	Double bifold		
12	L	2'-4" x 6'-8" x 1 3/8"	2	Double bifold		
		Window Schedule				
1	Ä,	4' - 1" x 2'-1"	6	Insulated glass		
2	8	4' - 1" x 5'-3"	6	Insulated glass		
3	C	4' x 1" x 4' x 1"	4	Insulated glass		

Door & Window Schedules

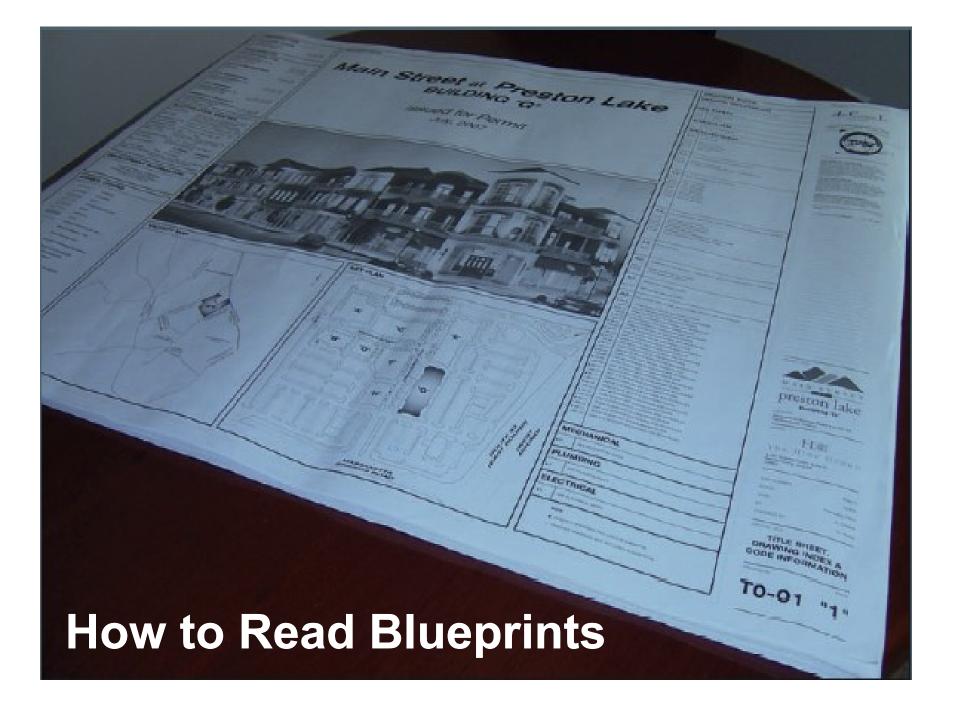
WINDOW SCHEDULE							
SYM.	SIZE	MODEL	ROUGH OPEN	CHAN			
A	11-01 x 51-01	TEMPERED		2			
В	8'-0" x 5'-0"	W4N5 C5M	8-2% 15-5%	I			
_ c	4'-0" x 5'-0"	W2NS C5M	4-28 = 5-5%	2			
D		W2N3 C5M	4'-2% " x 3'-5%"	2			
F	3.6 × 3.6	2N3 CSM	3-54" x 3-5%"	2			
r	6'-0" x 4'-0"	G64 SLDG	6-08, * 4, 0%,	I			
G	5'-0" x 3'-6"	G536 5LDG	5-0% - 3-6%	4			
Н	4'-0" x 3'-6"	G436 5LDG	4-041.3-65				
J	4'-0" x 2'-0"	A4 LAWN	4:08"x2:07;"	3			
K.	4'-0" x 4'-0"	G42 StDG	4'-0½ " x 4'-0% "	3			
DOOR SCHEDULE							
\$ma.	SIZE	TYPE		QUAN			
1		S.C. R.P. METAL INSULATED					
	3'-0" x 6'-8"			1			
2	3'-0" x G-8"	5.C. FLUSH-N	/ETAL INSUL	2			
3	3'-0" x G-8" 2'-8" x G-8"	5.C. FLUSH N 5.C-Stiff CLC	/ETAL INSUL	2			
3 4	3-0" x G-5" 2-8" x G-5" 2-8" x G-5"	5.C. FLUSH A 5.C.56LF CLC H.C.	/ETAL INSUL	2 5			
3 4 5	3:0" x 6:8" 2:8" x 6:8" 2:8" x 6:8" 2:6" x 6:8"	5.CFLUSH-N 5.C-58LF CLC H.C. H.C.	/ETAL INSUL	2 3 5			
3 4 5	3-0" x 6-8" 2-8" x 6-8" 2-8" x 6-8" 2-6" x 6-8" 2-6" x 6-8"	5.C. PLUSH A 5.C. SELF CLC H.C. H.C. POCKET	/ETAL INSUL	2 5			
3 4 5 6	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8°	5.C. FLUSH A 5.C. SELF CLC H.C. H.C. POCKET POCKET	/ETAL INSUL	2 5			
3 4 5 6 7	3.0 × 6.8 2.8 × 6.8 2.6 × 6.8 2.6 × 6.8 2.4 × 6.8 PR 2.6 × 6.8	5.C. FLUSH A 5.C. SELF CLO H.C. POCKET POCKET P. H.C.	/ETAL INSUL	5 2 -			
3 4 5 6 7 8	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8° PR 2.6° x 6.8° 5.0° x 6.0°	5.C. FLUSH A 5.C. SELF CLO H.C. H.C. POCKET POCKET H.C. BI-PASS	/ETAL INSUL	2 5			
3 4 5 6 7 8	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8° PR 2.6° x 6.8° 5.0° x 6.0° 3.0° x 6.8°	5.C. FLUSH A 5.C. SELF CLO H.C. H.C. POCKET POCKET PH.C. H.C. H.C. BI-PASS BI-POLO	/ETAL INSUL	5 2 -			
3 4 5 6 7 8 9	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8° 2.4° x 6.8° PR 2.6° x 6.8° 5.0° x 6.8° 4.0° x 6.8°	5.C. FLUSH A 5.C. SELF CLO H.C. H.C. POCKET POCKET POCKET PH.C. BI-PASS BI-FOLD BI-FOLD	METAL INSUL SING	5 2			
3 4 5 6 7 8 9	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8° 6.2° x 6.8° 7.2° x 6.8° 3.0° x 6.8° 4.0° x 6.8° 2.0° x 6.8° 4.0° x 6.8° 2.0° x 6.8°	5.C. FLUSH A 5.C. SELF CLO H.C. H.C. POCKET POCKET H.C. BI-PASS BI-POLD SHATTER PRO	METAL INSUL ISING	5 2			
3 4 5 6 7 8	3.0° x 6.8° 2.8° x 6.8° 2.6° x 6.8° 2.6° x 6.8° 2.4° x 6.8° 2.4° x 6.8° PR 2.6° x 6.8° 5.0° x 6.8° 4.0° x 6.8°	5.C. FLUSH A 5.C. SELF CLO H.C. H.C. POCKET POCKET H.C. BI-PASS BI-POLD SHATTER PRO	METAL INSUL ISING ISING IOF E-TEMP, SLDG, GL	5 2			



Door & Window Schedules



Door Schedule						
Location	Туре	Size	Quantity	Remarks		
1		3'-0" x 6'-0" x 1 3/4"	- 1	Inquisted		
2		4'-0" x 6'-0" x 1 3/4"	2	Insulated		
3	C	1'-0" x 6'-6" x 1 3/4"	1			
4	Ď	4-0' x 6-0' x 1 3/4'	1			
5		2'-4" x 5"-6" x 1 3/6"	2			
	F	2-4" x 5"-6" x 1 3/6"	3	1		
7	G	2-4" x 5" 6" x 1 3/6"	2			
	H	3'-4" x 2'-6" x 1 3/6"	1	Louvered		
9	1	4'-0" x 6'-6" x 1 3/8"	1	Double bitoid		
10	J	1'-6" x 6'-6" x 1 3/6"	4	Double biloid		
11	K	4'-0" x 2"-6" x 1 3/8"	8	Double bifold		
12	L	2'-4" x 6'-8" x 1 3/8"	2	Double bliefd		
Window Schedule						
1	Α	4' - 1' x 2'-1"	6	Insulated glass		
2	8	4' - 1' x 5'-0"	6	Insulated glass		
3	C	4'x1'x4'x1"	4	insulated glass		



How to Read Blueprints

- 1. Verify you have all the drawings in the set, and the specification book.
- Study plot plan to understand the setting of building.
- 3. Study architectural pages to understand layout of structure.
- 4. Review foundation plan.

How to Read Blueprints

- 5. Review wall construction.
- 6. Study plumbing, mechanical, and electrical sheets.
- 7. Review all notes on plans.
- 8. Review specifications and compare them to the drawings. (Specifications normally have priority.)

